

WHAT IS CLAIMED

1. A sensor comprising:
a substrate; and
at least one element imprinted on the substrate wherein the
5 imprinted element is visually indiscernible from the substrate, the element
containing at least one electroconductive material and having an active region
configured in at least one of conductive mode, inductive mode and capacitive
mode.
2. The sensor of claim 1 wherein the substrate comprises at least
10 two opposed surfaces and wherein at least one element is imprinted on each
opposed surface, each opposed element containing electroconductive material.
3. The sensor of claim 2 wherein the respective imprinted elements
on opposed surfaces are in overlapping contact when the opposed surfaces are
in overlying contact to one another.
- 15 4. The sensor of claim 2 wherein the respective printed elements on
opposed surfaces are in offset contact when the opposed surfaces are in
overlying contact with one another.
5. The sensor of claim 1 wherein the imprinted element is
transparent.
- 20 6. The sensor of claim 1 wherein the imprinted element is
translucent.
7. The sensor of claim 1 further comprising;
at least one lead in electronic communication with at least one of
a power source and a logic circuit; and
25 at least one lead in electronic communication with a power
consuming device that is powered by the power source.

8. The sensor of claim 7 wherein the substrate comprises at least first and second surfaces, the first and second surfaces moveable relative to one another, wherein a first element is located on the first surface and a second element is located on the second surface.

5 9. The sensor of claim 8 wherein the first and second contact surfaces are opposed to one another.

10. The sensor of claim 8 wherein the first and second surfaces are offset from one another.

10 11. The sensor of claim 7 wherein the lead in communication with the power source is imprinted on the substrate and contains electroconductive material.

12. The sensor of claim 7 wherein the lead in communication with the power consuming device is imprinted on the substrate and contains electroconductive material.

15 13. The sensor of claim 7 further comprising a switch, the switch associated with and controlled by the logic circuit.

14. A sensor imprintably positioned on a substrate, the sensor comprising:

20 a first element containing electroconductive material;
a second element matingly contactable with the first element;
at least one power source in electrical communication with the first and second elements; and
at least one power consuming source in electrical communication with the first and second elements, wherein the power source and power
25 consuming source are in electric communication when the first and second elements are in contact with one another wherein the electrochemical material in at least one of the first and second elements is visually indiscernible from the substrate.

15. The sensor of claim 14 further comprising a logic and sensing circuit, wherein the first and second elements are in communication with the logic and sensing circuit in a manner which detects contact between the first and second elements.

5 16. The sensor of claim 15 further comprising a switch associated with the logic and sensing circuit.

17. The sensor of claim 15 wherein the first and second elements are positioned on the substrate such that the first and second elements are in opposed contact with one another.

10 18. The sensor of claim 15 wherein the first and second elements are positioned on the substrate such that the first and second elements are in offset contact with one another.

19. The sensor of claim 14 wherein the electroconductive material in at least one of the first and second elements is transparent.

15 20. The sensor of claim 14 wherein the electroconductive material in at least one of the first and second elements is translucent.

21. A device having at least two surfaces in moveable relationship to one another, the device comprising:

20 a first substrate associated with a first surface having an outwardly oriented surface;

 a second substrate associated with a second surface having an outwardly oriented surface in removable overlying relationship to the first surface;

25 at least one electrically active element imprinted on at least one of the first and second substrates, the electrically active element having at least one region of electroconductive material, wherein at least a portion of the region of electroconductive material is visually indiscernible relative to the associated substrate.

22. The device of claim 21 wherein the device includes at least two electrically active elements, the electrically active element being electroconductive elements in removable contact with one another.

23. The device of claim 22 further comprising logic and sensing
5 circuitry in electronic communication with the electrically active elements, the sensing circuitry configured to sense or detect at least one of electroconductive element proximity, electroconductive element contact, electroconductive element movement, electroconductive contact acceleration, and electroconductive contact velocity.

10 24. The device of claim 21 wherein the electroconductive element is at least one of a capacitor, a conductor, and an inductive circuit.

25. The device of claim 21 further comprising a power source and at least one lead connected to the power source and the electrical element imprinted on the surface of the substrate.

15 26. The device of claim 25 wherein the power source is located in one of the substrates.

27. The device of claim 25 further comprising at least one logic and sensing circuit and at least one switch in electronic communication with the power source and the electrically active element, the logic and sensing circuit
20 adapted to sense or detect at least one of electroconductive element proximity, electroconductive element contact, electroconductive element movement, electroconductive contact acceleration, and electroconductive contact velocity.

28. The device of claim 22 wherein the electroconductive elements are in opposed removable contact with one another.

25 29. The device of claim 22 wherein the electroconductive elements are in offset removable contact with one another.

30. The device of claim 21 wherein the electroconductive element is at least one of a capacitor, a conductor and an inductive circuit.

31. The device of claim 30 wherein the electroconductive element is in electronic communication with logic and sensing circuitry.

5 32. The device of claim 31 further comprising a power source and at least one lead connected to the power source and the electrical element imprinted on the surface of the substrate.

33. The device of claim 32 wherein the power source is located in one of the substrates.

10 34. The device of claim 31 wherein the electroconductive region comprises an electroconductive ink.

35. The device of claim 34 wherein the electroconductive ink is transparent.

15 36. The device of claim 34 wherein the electroconductive ink is translucent.

37. The device of claim 32 further comprising at least one power source, the power source in communication with the electrically active element.

20 38. The device of claim 32 wherein at least one substrate is composed of a flexible nonconductive material including at least one of paper, plastic, and woven fabric.

39. The device of claim 32 wherein the first and second substrates are integrated into a codex.

40. The device of claim 32 wherein the first and second substrates are integrated into a flexible sheet having at least one fold region.

41. The device of claim 32 further comprising a control mechanism for interactively illuminating selected electroconductive ink in a predetermined manner.

42. The device of claim 41 wherein the illumination control
5 mechanism comprises a device for storing and retrieving preprogrammed logic.

43. A sensor comprising:
at least one element containing at least one electroconductive material and at least one active region configured in at least one of conductive mode, inductive mode and capacitive mode; and
10 means for supporting the element, wherein the element is visually indiscernible from the support means.

44. The sensor of claim 43 further comprising means for consuming power;
means for supplying power; and
15 means for providing control logic, the logic providing means in electronic communication with the at least one element containing electroconductive material and actionable on at least one of the power consuming means and power supplying means.